

Gualala Watershed Synthesis Report



The mission of the North Coast Watershed Assessment Program is to conserve and improve California's north coast anadromous salmonid populations by conducting, in cooperation with public and private landowners, systematic multi-scale assessments of watershed conditions to determine factors affecting salmonid production and recommend measures for watershed improvements.

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Limitations of the Assessment

This assessment provides useful and valuable information represented a considerable effort of the involved agencies, contractors, and public. It was limited in duration, scope, detail, and analysis level due to constraints in budget, time, access, and overall resources. Where data are limited, working hypotheses are offered along with recommendations to test or improve the knowledge base. Specific limitations are presented below to put the assessment in context.

- Point or more local data, e.g., individual stream reaches, were described in relation to those small geographical areas. As descriptions and inferences are drawn from those data to a more regional, watershed scale the certainty associated with those conclusions and inferences is reduced. In those cases, the NCWAP team offered working hypotheses with suggestions for testing or improving the level of certainty. This is due to lacking historical and current data compared to the Mattole and Redwood River watersheds coupled with the unique geology of the Gualala watershed make subbasin comparisons difficult. Hence, this draft hopes to describe sound hypotheses based upon the most current information available to reduce speculation.
- DFG conducted over 100 miles of habitat inventory on streams throughout the entire watershed from June – November, 2001. Approximately 15 miles of habitat inventory data existed prior to this assessment, collected by the Sotiyomy RCD (1995) and DFG (1999). This immense amount of data collect in 2001 has undergone and continues to undergo QA/QC processing, however, without this extensive fieldwork, current instream conditions would have remained unknown and the EMDS model could not have been used on the Gualala. DFG conducted electro fishing surveys in all subbasins except Rockpile through November, 2001 for this assessment. Data are still being compared to past existing data.
- DMG's landslide and geomorphic analyses were limited to aerial photo interpretation from two sets of photos: 1984 and 1999-2000, and limited field verification. Limited aerial photo coverage does not bracket temporal distribution of important watershed events, which may not be evident in photos taken years after the fact. Field checking of interpretations was extremely limited.
- The geologic analysis did not identify erosion sources beyond mass wasting and gullying, such as surface erosion or erosion induced by human activities.
- At the analysis scale of 1:24,000, the detection of geologic features smaller than 100 feet in greatest diameter is poor.
- Detailed site level mapping of landslides and sediment delivery were conducted by outside parties in various portions of the watershed. However, time and staffing constraints prevented evaluation of those data.
- DMG has not reviewed all geologic references from other sources used in this report. Geologic conclusions cited by others do not necessarily reflect the views of DMG.
- DMG's assessment of fluvial and hillslope conditions has not been completed; findings may change when relative potential maps are completed.
- Existing geologic mapping of the Rockpile Creek subbasin is limited to the CDMG 2-degree sheet. The presence and location of geologic features in this area were inferred from surrounding areas where more detailed mapping was available.
- CDF's land use analysis used aerial photos exclusively. Sediment sources found in earlier photo sets were not field reviewed to ascribe current comparative condition.
- Localized point source channel aggradations and meandering flows observed shortly after the 1964 storms were not systematically compared sequentially through time to detail evolving stream channel morphology. Only spot point comparisons with 84, 88, and 1999 photos were done depending on where 1964 flood damage was observed.
- There was only time to compare the broadest contrasts between 1950s/ 1960 era impacts with declining habitat conditions. More subtle habitat changes to properly characterize recent land use activities requires a far larger and detailed data base to make significant conclusions.
- NCRWQCB's water chemistry analysis was limited to available USEPA StoRet data for the period April of 1974 to June of 1988 at three locations, and three samples obtained by NCRWQCB at five locations in 2001. The sampling frequency and small number of locations did not allow for any detailed temporal analysis.
- Pesticide data were not available from StoRet, nor collected in the NCRWQCB sampling of 2001.
- Collection of additional water quality data on daily dissolved oxygen, pH, conductance, and temperature at locations near the confluences of several major tributaries did not occur due to access limitations.
- NCRWQCB analyzed water temperature and in-channel data supplied by the GRWC and GRI for the period from 1992 to 2001. Not all locations received sampling throughout that period, limiting the ability to compare across years and among sites.
- The temperature range used for "proposed fully suitable" of 50-60 F was developed as an average of the needs of several cold water fish species, including coho salmon and steelhead trout. As such, the range does not

represent fully suitable conditions for the most sensitive cold water species (usually considered to be coho).

- In-channel data and some temperature data were provided as summary statistics (medians, means, and maximums), limiting the ability to factor variability into the analysis, and not allowing for independent checks on the data quality. As such, the analyses and subsequent assessment are limited in scope.
- Temperature data analysis did not include probability of exceedence from cumulative distribution plots, or hours of exceedance of a threshold. This analysis was limited by not having raw data for all sites, obtaining raw data late in the analysis, and data interface problems.
- NCRWQCB did not have turbidity nor suspended solids data, though considers them critical to watershed analysis. The absence of those data and any analysis of suspended loads and turbidity are limitations in this assessment.
- Analysis of temperature information is without knowledge of the extent of a thermal reach upstream of the continuous data logger.